Enterasys Matrix™

DFE-Gold Series

Hardware Installation Guide

Module 4G4202-60
Module 4G4282-41

P/N 9033910-02

enterasys®

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

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This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Notice

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Class A ITE Notice

WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Clase A. Aviso de ITE

ADVERTENCIA: Este es un producto de Clase A. En un ambiente doméstico este producto puede causar interferencia de radio en cuyo caso puede ser requerido tomar medidas adecuadas.

Klasse A ITE Anmerkung

WARNHINWEIS: Dieses Produkt zählt zur Klasse A (Industriebereich). In Wohnbereichen kann es hierdurch zu Funkstörungen kommen, daher sollten angemessene Vorkehrungen zum Schutz getroffen werden.

Product Safety

This product complies with the following: UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Seguridad del Producto

El producto de Enterasys cumple con lo siguiente: UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Produktsicherheit

Dieses Produkt entspricht den folgenden Richtlinien: UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Electromagnetic Compatibility (EMC)

This product complies with the following: 47 CFR Parts 2 and 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Compatibilidad Electromágnetica (EMC)

Este producto de Enterasys cumple con lo siguiente: 47 CFR Partes 2 y 15, CSA C108.8, 89/336/EEC, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, VCCI V-3.

Elektro- magnetische Kompatibilität (EMC)

Dieses Produkt entspricht den folgenden Richtlinien: 47 CFR Parts 2 and 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Hazardous Substances

This product complies with the requirements of European Directive, 2002/95/EC, Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

European Waste Electrical and Electronic Equipment (WEEE) Notice

In accordance with Directive 2002/96/EC of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required and that this product was placed on the European market after August 13, 2005, the date of enforcement for Directive 2002/96/EC.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

   For information about the available collection system, please go to http://www.enterasys.com/services/support/ or contact Enterasys Customer Support at 353 61 705586 (Ireland).

产品说明书附件
Supplement to Product Instructions

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	×	○	○	×	○	○
电路模块 (Circuit Modules)	×	○	○	×	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	×	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	×
电路开关 (Circuit Breakers)	○	○	×	×	○	○

○： 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。
Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.

×： 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。
Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T 11363-2006 standard.

对销售之日的所售产品, 本表显示,
凯创供应链的电子信息产品可能包含这些物质。注意:在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of Enterasys' electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.

除非另外特别的标注, 此标志为针对所涉及产品的环保使用期标志. 某些零部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上.
此环保使用期限只适用于产品是在产品手册中所规定的条件下工作.
The Environmentally Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain parts may have a different EFUP (for example, battery modules) and so are marked to reflect such. The Environmentally Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.

VCCI Notice

This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種請況下，使用者會被要求採取某些適當的對策。

Safety Information
Class 1 Laser Transceivers

The single mode network expansion modules use Class 1 laser transceivers.
Read the following safety information before installing or operating these modules.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55×10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or 8×10^{3} W m^{2} sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

Declaration of Conformity

Application of Council Directive(s):	**89/336/EEC** **73/23/EEC**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**50 Minuteman Road** **Andover, MA 01810** **USA**
European Representative Address:	**Enterasys Networks, Ltd.** **Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG14 2PZ, England**
Conformance to Directive(s)/Product Standards:	**EC Directive 89/336/EEC** **EN 55022** **EN 61000-3-2** **EN 61000-3-3** **EN 55024** **EC Directive 73/23/EEC** **EN 60950** **EN 60825**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial or Light Industrial Environment.**

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

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10. **ENFORCEMENT.** You acknowledge and agree that any breach of Sections 2, 4, or 9 of this Agreement by You may cause ENTERASYS irreparable damage for which recovery of money damages would be inadequate, and that ENTERASYS may be entitled to seek timely injunctive relief to protect ENTERASYS' rights under this Agreement in addition to any and all remedies available at law.

11. **ASSIGNMENT.** You may not assign, transfer or sublicense this Agreement or any of Your rights or obligations under this Agreement, except that You may assign this Agreement to any person or entity which acquires substantially all of Your stock or assets. ENTERASYS may assign this Agreement in its sole discretion. This Agreement shall be binding upon and inure to the benefit of the parties, their legal representatives, permitted transferees, successors and assigns as permitted by this Agreement. Any attempted assignment, transfer or sublicense in violation of the terms of this Agreement shall be void and a breach of this Agreement.

12. **WAIVER.** A waiver by ENTERASYS of a breach of any of the terms and conditions of this Agreement must be in writing and will not be construed as a waiver of any subsequent breach of such term or condition. ENTERASYS' failure to enforce a term upon Your breach of such term shall not be construed as a waiver of Your breach or prevent enforcement on any other occasion.

13. **SEVERABILITY.** In the event any provision of this Agreement is found to be invalid, illegal or unenforceable, the validity, legality and enforceability of any of the remaining provisions shall not in any way be affected or impaired thereby, and that provision shall be reformed, construed and enforced to the maximum extent permissible. Any such invalidity, illegality or unenforceability in any jurisdiction shall not invalidate or render illegal or unenforceable such provision in any other jurisdiction.

14. **TERMINATION.** ENTERASYS may terminate this Agreement immediately upon Your breach of any of the terms and conditions of this Agreement. Upon any such termination, You shall immediately cease all use of the Program and shall return to ENTERASYS the Program and all copies of the Program.

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About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys Matrix™ DFE-Gold 4G4202-60 and 4G4282-41 modules.

For information about the CLI (Command Line Interface) set of commands used to configure and manage the DFE-Gold modules, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

Note: In this guide, the following terms are used:

- *DFE* refers to Distributed Forwarding Engine series of modules.
- DFE-Gold module or *module* refers to the 4G4202-60 and 4G4282-41. If the information applies only to one of the modules, the module is referred to by its model number (such as 4G4282-41).
- *Network expansion module* or *NEM* refers to an optional uplink card installed on the main logic board and accessible through the option slot of the 4G4282-41.

Important Notice

Depending on the firmware version used in the DFE-Gold module, some features described in this document may not be supported. Refer to the Release Notes shipped with the DFE-Gold module to determine which features are supported.

Who Should Use This Guide

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

This guide is intended for a network administrator responsible for installing and setting up the DFE modules.

How to Use This Guide

This preface provides an overview of this guide and the DFE-Gold Series manual set, and a brief summary of each chapter; defines the conventions used in this document; and instructs how to obtain technical support from Enterasys Networks. To locate information about various subjects in this guide, refer to the following table:

For...	Refer to...
An overview of the DFE-Gold modules	Chapter 1, **Introduction**
Network requirements that must be met before installing the DFE-Gold modules	Chapter 2, **Network Requirements**
Instructions to install the DFE-Gold module hardware	Chapter 3, **Installation**
Troubleshooting installation problems and diagnosing network/operational problems using the LANVIEW LEDs	Chapter 4, **Troubleshooting**
Specifications, environmental requirements, and physical properties of the DFE-Gold modules	Appendix A, **Specifications**
Instructions to set the mode switches when necessary and remove and replace DRAM SIMM and DIMM memory	Appendix B, **Mode Switch Bank Settings and Optional Installations**

Related Documents

The manuals listed below can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

http://www.enterasys.com/support/manuals

- *Enterasys Matrix DFE-Gold Series Configuration Guide* provides information on how to use the Command Line Interface to set up and manage the DFE-Gold modules.
- *Cabling Guide* provides information on dB loss and cable specifications.

  Unlike the *Enterasys Matrix DFE-Gold Series Configuration Guide*, the *Cabling Guide* is not listed alphabetically on the web site. Instead, it is listed under the *Overview Guides* link.

Conventions Used in This Guide

The following conventions are used in this guide:

Note: Calls the reader's attention to any item of information that may be of special importance.

Caution: Contains information essential to avoid damage to the equipment.

Precaución: Contiene información esencial para prevenir dañar el equipo.

Achtung: Verweißt auf wichtige Informationen zum Schutz gegen Beschädigungen.

Electrical Hazard: Warns against an action that could result in personal injury or death due to an electrical hazard.

Riesgo Electrico: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico.

Elektrischer Gefahrenhinweis: Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Warning: Warns against an action that could result in personal injury or death.

Advertencia: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte.

Warnhinweis: Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!

Lowercase x: Indicates the general use of an alphanumeric character (for example, 6x1xx, the x's indicate a combination of numbers or letters).

Getting Help

For additional support related to the modules or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	www.enterasys.com/services/support/
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1000 For the Enterasys Networks Support toll-free number in your country: www.enterasys.com/services/support/contact/
Internet mail	support@enterasys.com To expedite your message, type **[SWITCHING]** in the subject line.
To send comments concerning this document to the Technical Publications Department: techpubs@enterasys.com Please include the document Part Number in your email message.	

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any actions already taken to resolve the problem (for example, changing mode modules, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (for example, layout, cable type)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, have you returned the device before, is this a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

1

Introduction

This chapter provides an overview of the DFE-Gold module capabilities, and introduces the 4G4202-60 and 4G4282-41 DFE-Gold modules.

Important Notice

Depending on the firmware version used in the DFE-Gold module, some features described in this document may not be supported. Refer to the Release Notes shipped with the DFE-Gold module to determine which features are supported.

Overview of DFE-Gold Series Capabilities

The Gold Distributed Forwarding Engine (DFE) is Enterasys Networks' next generation of enterprise modules for the Matrix N-Series and Matrix E7 switches. These DFE modules deliver high performance and flexibility to ensure comprehensive switching, routing, Quality of Service, security, and traffic containment. Key features include:

- Superior performance and capacity to support more high-bandwidth and latency sensitive applications
- 10/100/1000 Base-TX and 10 Gigabit Ethernet connectivity
- Integrated Services Design that reduces the number/type of modules required, simplifies network design, and lowers entry cost
- Port- and User-Based Policy and Multilayer Packet Classification that provides granular control and security for business-critical applications
- High-availability services with stateful failover for services and management
- Self-learning configuration modules with increased reliability and fault tolerance that reduces configuration time and maximizes uptime
- Network-wide configuration, change, and inventory management that is easier to install, troubleshoot, and maintain
- Reduced support and maintenance costs, and decreased configuration time
- Support for a variety of converged applications including VoIP with Power-over-Ethernet

The DFE-Gold Modules

This section provides an overview of DFE-Gold modules 4G4202-60 and 4G4282-41 (Figure 1-1).

Caution: Regardless of which chassis is used, the chassis system must be dedicated to DFE-Gold modules (4xxxxx) only. Do not insert 7xxxxx modules or other legacy modules into the same chassis with 4xxxxx modules as this will render the chassis inoperable.

Precaución: Cualquiera que sea el chasis que utilice, recuerde que el sistema debe aplicarse exclusivamente a los módulos DFE (Distributed Forwarding Engine) de la serie Gold (4xxxxx). No inserte módulos 7xxxxx ni otros módulos legado dentro de un chasis con módulos 4xxxxx. Si lo hace, el chasis no funcionará.

Each of the fixed front panel ports can operate in either half-duplex or full-duplex mode of operation. The duplex mode can be determined by either auto-negotiation or manual configuration.

The DFE-Gold module ports can be configured to control traffic by limiting the rate of traffic accepted into the module and prioritizing traffic to expedite the flow of higher priority traffic through the module.

The DFE-Gold module receives power and backplane connectivity when it is inserted into theMatrix N1, Matrix N3, Matrix N5, Matrix N7, or Matrix E7 chassis.

The information concerning the DFE module features and how to configure them to a network are provided in the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

4G4202-60

The 4G4202-60 is an edge-network switch with 60, 10BASE-T/100BASE-TX/1000BASE-T ports via 60 front-panel RJ45 connectors.

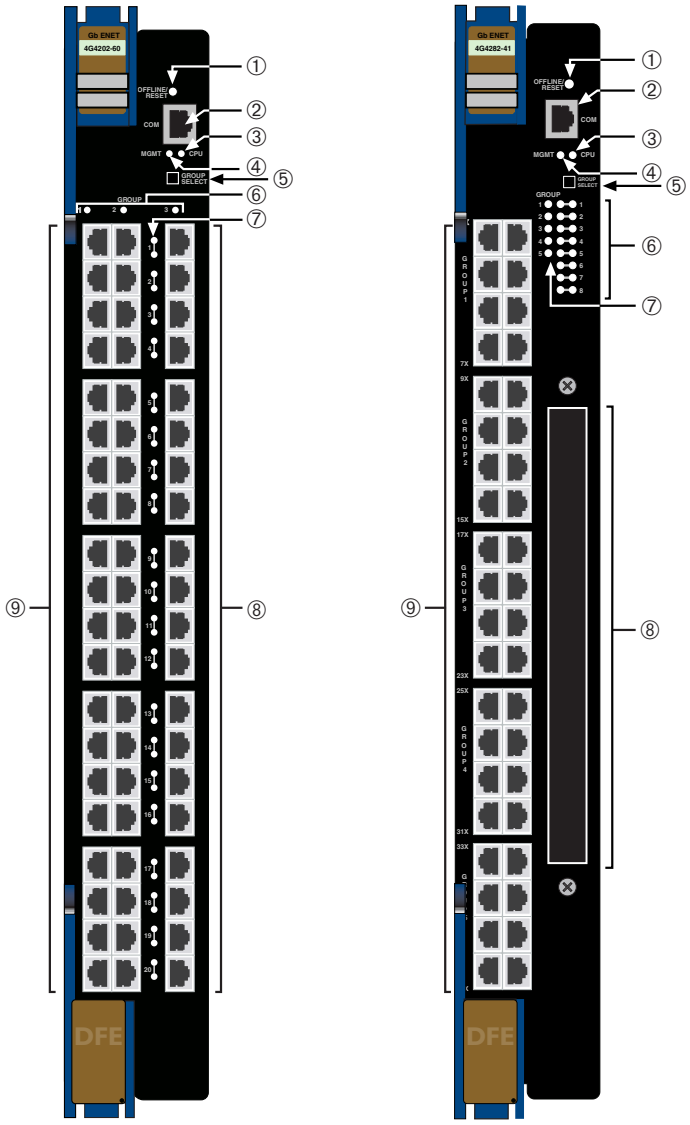
4G4282-41

The 4G4282-41 is an edge-network switch with 40, 10BASE-T/100BASE-TX/1000BASE-T compliant ports via 40 fixed front-panel RJ45 connectors and a slot for an optional network expansion module (NEM).

Optional Network Expansion Module (NEM)

The 4G4282-41 option slot provides access to an installed network expansion module (NEM). Refer to your release notes or the Enterasys Networks web site for the latest available network expansion modules. Specific installation instructions are shipped with each NEM.

Figure 1-1 4G4202-60 and 4G4282-41 DFE-Gold Modules



① OFFLINE/RESET switch	⑥ GROUP selected LEDs
② RJ45 COM (Console Port)	⑦ GROUP status LEDs
③ CPU LED	⑧ 4G4202-60 - Ports (41-60), 10/100/1000 Mbps, via 20 RJ45s 4G4282-41 - NEM option slot
④ MGMT LED	
⑤ GROUP SELECT button	⑨ Ports (1-40), 10/100/1000 Mbps, via 40 RJ45s

Connectivity

4G4202-60

The 4G4202-60 has 10BASE-T/100BASE-TX/1000BASE-T compliant ports via 60, fixed RJ45 front panel connectors.

4G4282-41

Depending on how the 4G4282-41 (Figure 1-1) is configured, it can support up to:

- 40, 10BASE-T/100BASE-TX/1000BASE-T switched ports connected through 40, fixed RJ45 front panel connectors, or
- 40, 10BASE-T/100BASE-TX/1000BASE-T switched ports and an optional network expansion module.

Management

Management of the module can be either in-band or out-of-band. In-band remote management is possible using Telnet, Enterasys Networks' NetSight® management application, or WebView™ application. Out-of-band management is provided through the RJ45 COM (Communication) port on the front panel using a VT100 terminal or a VT100 terminal emulator.

Switch Configuration Using WebView

Enterasys Networks' HTTP-based Web management application (WebView) is an intuitive web tool for simple management tasks.

Switch Configuration Using CLI Commands

The CLI commands enable you to perform more complete switch configuration management tasks.

For CLI command set information and how to configure the module, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

Secure Networks Policy Support

Policy Enabled Networking manages the allocation of networking infrastructure resources in a secure and effective manner. Using **Secure Networks Policy**, an IT Administrator can predictably assign appropriate resources to the Users, Applications, and Services that use the network; while blocking or containing access for inappropriate or potentially dangerous network traffic. Using this technology it is possible, for the first time, to align IT services with the needs of specific users and applications, and to leverage the network as a key component of the organization's security strategy.

The Secure Networks Policy Architecture consists of 3 components: Classification Rules, Network Services, and Behavioral Profiles. These are defined as follows:

- Classification Rules determine how specific traffic flows (identified by Layer 2, Layer 3, and Layer 4 information in the data packet) are treated by each Switch or Router. In general, Classification Rules are applied to the networking infrastructure at the network edge/ingress point.
- Network Services are logical groups of Classification Rules that identify specific networked applications or services. Users may be permitted or denied access to these services based on their role within the organization. Priority and bandwidth rate limiting may also be controlled using Network Services.
- Behavioral Profiles (or roles) are used to assign Network Services to groups of users who share common needs–for example Executive Managers, Human Resources Personnel, or Guest Users. Access, resources, and security restrictions are applied as appropriate to each Behavioral Profile. A variety of authentication methods including 802.1X, EAP-TLS, EAP-TTLS, and PEAP may be used to classify and authorize each individual user; and the IT Administrator may also define a Behavioral Profile to apply in the absence of an authentication framework.

Standards Compatibility

The DFE-Gold modules are fully compliant with the IEEE 802.3-2002, 802.3ae-2002, 802.1D-1998, and 802.1Q-1998 standards. The DFE-Gold module provides IEEE 802.1D-1998 Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against "loop" conditions.

LANVIEW Diagnostic LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

2

Network Requirements

Before installing the module, review the requirements and specifications referred to in this chapter concerning the following:

The network installation must meet the requirements detailed in this chapter to ensure satisfactory performance of this equipment. Failure to do so will produce poor network performance.

Note: The *Enterasys Matrix DFE-Gold Series Configuration Guide* and the *Cabling Guide* referred to in the following sections can be found on the Enterasys Networks World Wide Web site: http://www.enterasys.com/support/manuals

Refer to "Related Documents" in **About This Guide**.

Link Aggregation

Link Aggregation is a method of grouping multiple physical ports on a network device into one logical link according to the IEEE 802.3ad-2002 standard. Because Link Aggregation is standards based, it allows for automatic configuration with manual overrides (if applicable), and can operate on 10 Mbps, 100 Mbps, or 1000 Mbps Ethernet full duplex ports. Thus the network administrator can combine a group of five 100 Mbps ports into a logical link (trunk) that functions as a single 500 Mbps port. As long as the DFE modules agree on which ports are in the trunk, there are no problems with looping, and the Spanning Tree can treat this trunk as a single port.

In normal usage (and typical implementations) there is no need to enable/disable ports for Link Aggregation. The default values will result in the maximum number of aggregations possible. If the switch is placed in a configuration with its peers not running the protocol, no aggregations will be formed and the DFE modules will function normally (that is, Spanning Tree will block redundant paths).

For details about the commands involved with configuring the Link Aggregation function, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

10BASE-T Network

When connecting a 10BASE-T segment to any of the fixed front panel ports of the 4G4202-60 or 4G4282-41, ensure that the network meets the Ethernet network requirements of the IEEE 802.3-2002 standard for 10BASE-T. Refer to the *Cabling Guide* for details.

Note: If a port is to operate at 100 Mbps, Category 5 cabling must be used. Category 3 cabling does not meet 100 Mbps specifications. For 10 Mbps operation only, Category 3 or Category 5 cabling can be used. Refer to "100BASE-TX Network" on page 2-2 for information about 100BASE-TX networks and cabling.

100BASE-TX Network

The fixed front panel ports of the 4G4202-60 and 4G4282-41 provide a connection that supports Category 5 UTP cabling. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 100BASE-TX Fast Ethernet network requirements for the devices to operate at 100 Mbps. Refer to the *Cabling Guide* for details.

Note: The fixed ports of the module support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 Mbps operation. The module is capable of operating at 10, 100, or 1000 Mbps and can automatically sense the port speed of the other device and adjust its speed accordingly.

1000BASE-T Network

The 4G4202-60 and 4G4282-41 support 10/100/1000 Mbps via fixed RJ45 front panel connectors. These connections support copper wire connections that can operate up to 1000 Mbps. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 network requirements for the devices to operate at Gigabit speed.

Note: The fixed ports of each module support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 and 1000 Mbps operation and can automatically sense the port speed of the other device and adjusts its speed accordingly.

3

Installation

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

Important Notice

Read the Release Notes shipped with the DFE-Gold module to check for any exceptions to the supported features and operation documented in this guide.

This chapter provides the instructions to install the 4G4202-60 and 4G4282-41 DFE-Gold modules. Follow the order of the sections listed below to correctly install the modules.

Installation Site Requirement

The DFE-Gold module must be installed in a Matrix E7, N1, N3, N5, or N7 chassis located in a Restricted Access Location (RAL). This location should only be accessible by people that have been trained or are technically competent enough to be aware of potential risks of accessing the hazardous areas of the chassis. Locations such as a locked wiring closet or locked cabinet meet this requirement.

Warning: Install this module in a Matrix E7, N1, N3, N5, or N7 chassis that has been installed in a Restricted Access Location only. Access to the equipment by users must be restricted through the use of a tool or lock and key or other means of security and is controlled by the authority responsible for the location.

Advertencia: Instalar este modulo en un Matrix E7, N1, N3, N5, o N7 que ha sido localizado en un lugar de Acceso Restringido. Aceso al equipo debe ser restringido por el responsable del sitio.

Warnhinweis: Installieren Sie dieses Modul nur in einem E7, N1, N3, N5, oder N7 Chassis, wenn sich diese in einer zugangsgeschützten Umgebung befinden. Der Bereich zu den Komponenten sollte durch ein Schloß, einen Schlüssel oder sonstigen Sicherungen geschützt und durch einen Verantwortlichen kontrolliert werden.

Unpacking the DFE-Gold Module

Unpack the DFE-Gold module as follows:

1. Open the box and remove the packing material protecting the DFE-Gold module.
2. Verify the contents of the carton as listed in .

Item	Quantity
DFE-Gold module (4G4202-60 or 4G4282-41)	1
Installation Guide	1
Customer Release Notes	1

3. Remove the tape seal on the non-conductive bag to remove the DFE-Gold module.
4. Perform a visual inspection of the DFE-Gold module for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to "Getting Help" on page xviii for details.

Installing Optional Network Expansion Module (NEM)

Note: Install any optional equipment before proceeding to the section, "DFE Module Placement and Installation Rules," on page 3-3 for an explanation of the rules to install different series modules in a Matrix E7 chassis.

Refer to your release notes or the Enterasys Networks web site for the latest available network expansion module.

A Phillips screwdriver is needed to install an optional network expansion module into 4G4282-41.

Installing a NEM involves

- removing the coverplate from the DFE-Gold module,
- attaching the NEM to the DFE-Gold module,
- installing the NEM,
- replacing the coverplate.

Refer to the installation instuctions shipped with the NEM for details.

DFE Module Placement and Installation Rules

Note: It is important to follow the Module Placement and Rules to ensure proper operation.

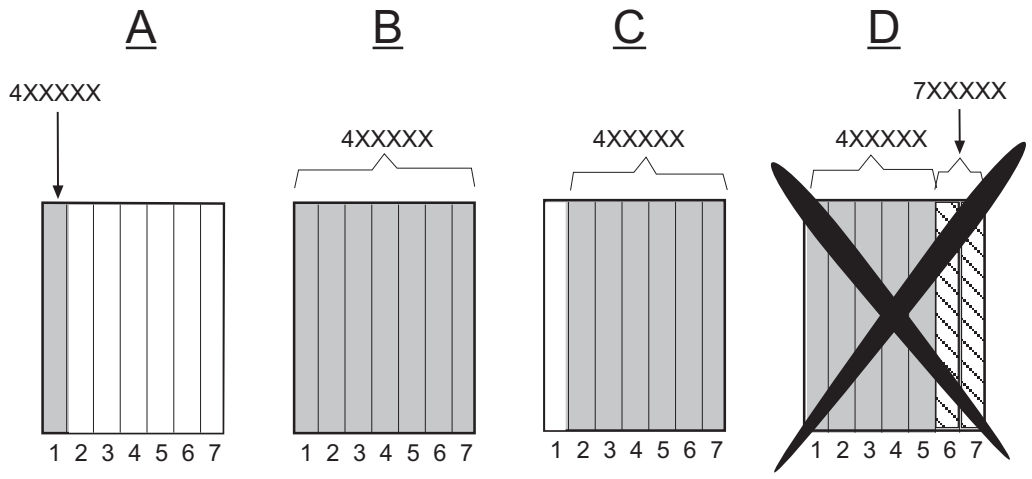
The DFE-Gold module can be installed in a Matrix E7 (refer to Figure 3-2 on page 3-8) for placement rules), Matrix N1, Matrix N3, Matrix N5, or Matrix N7 chassis.

The Matrix N1, Matrix N3, Matrix N5, or Matrix N7 chassis support only DFE modules and there are no particular rules for installing modules.

Caution: Regardless of which chassis is used, the chassis system must be dedicated to DFE-Gold modules (4xxxxx) only. Do not insert 7xxxxx modules or other legacy modules into the same chassis with 4xxxxx modules as this will render the chassis inoperable.

Precaución: Cualquiera que sea el chasis que utilice, recuerde que el sistema debe aplicarse exclusivamente a los módulos DFE (Distributed Forwarding Engine) de la serie Gold (4xxxxx). No inserte módulos 7xxxxx ni otros módulos legado dentro de un chasis con módulos 4xxxxx. Si lo hace, el chasis no funcionará.

Figure 3-1 Examples, Slot Numbers and Module Placement in Matrix E7 or N7



To ensure proper operation of the system, consider the following examples and rules for module placement in either chassis.

Example 1 (Figure 3-1, A)

Shows one module installed in the chassis. If the chassis is populated with only one 4xxxxx, it must be installed in slot 1.

Rule: If only one 4xxxxx is installed in the chassis, it must be in slot 1. Always install a 4xxxxx in slot 1 of the chassis.

Example 2 (Figure 3-1, B)

Shows the chassis fully populated with 4xxxxx modules. All modules may be hot swapped, except the module in slot 1. If the module in slot 2 is designated as a redundant management module, the module in slot 1 may be hot swapped without shutting down the system. The module in slot 2 can be designated using the CLI command **set license** <*license key*>.

For information on how to use this command, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*. To access this guide on the web, refer to "Related Documents" on page xvi.

Without a designated redundant management module in slot 2, removing the module in slot 1 will shut down the system.

Rule: Any module in a 4xxxxx system, including the management module in slot 1, may be hot swapped when there is a 4xxxxx module designated as a redundant management module in slot 2.

Example 3 (Figure 3-1, C)

Shows the primary management module missing from slot 1. As long as the module installed in slot 2 is designated as a redundant management module, the module in slot 1 can be removed without affecting system operation. However, if there is no module in slot 1, and the system is powered down, it cannot be restarted without a module in slot 1.

Caution: When installing a module into slot 1 of a non-operating chassis, it is strongly recommended that the module have the desired version of firmware. Installation of a replacement module into slot 1 of a non-operating chassis requires reconfiguration of the system settings.

Precaución: Para instalar un módulo en la ranura 1 del chasis apagado, lo mejor es que el módulo corresponda a la versión de firmware solicitada. Para instalar un módulo de reemplazo en la ranura 1 del chasis apagado será necesario reconfigurar el sistema.

Rule: You cannot power up the system completely without a module in slot 1.

Example 4 (Figure 3-1, D)

Shows a chassis populated with 4xxxxx and 7xxxxx modules. **DO NOT** install 4xxxxx and 7xxxxx modules in the same chassis. In a 4xxxxx system, the chassis must be dedicated to DFE-Gold modules only. The chassis will be rendered inoperable if any other type of module (DFE-Platinum or legacy modules, for example) are installed in the same chassis with DFE-Gold modules.

Rule: In a 4xxxxx system, the chassis must be populated with only 4xxxxx boards to operate.

Installing Module into a Chassis

Caution: Failure to observe static safety precautions could cause damage to the DFE module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

Precaución: Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

To install a DFE-Gold module into a Matrix E7 or Matrix N7 chassis, proceed directly to "Preparation" on page 3-6 to start the installation process.

Preparation

1. Remove the blank panel covering the slot in which the module will be installed. All other slots must remain covered to ensure proper airflow for cooling. (Save the blank plate in the event you need to remove the module.)
2. Remove the module from the shipping box. (Save the box and packing materials in the event the module needs to be reshipped.)
3. Locate the antistatic wrist strap shipped with the chassis. Attach the antistatic wrist strap to your wrist and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the chassis.
4. Remove the module from the plastic bag. (Save the bag in the event the module must be reshipped.) Observe all precautions to prevent damage from Electrostatic Discharge (ESD).
5. Examine the module for damage. If any damage exists, DO NOT install the module. Immediately contact Enterasys Networks. Refer to "Getting Help" on page xviii.

Installing Module into Matrix E7 or N7 Chassis

To install the module, refer to Figure 3-2 and proceed as follows:

Caution: To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors.

Ensure that the top lever lines up with the desired slot number located on the front panel of the chassis. Refer to Figure 3-2.

Precaución: Para evitar que se dañen los conectores del panel posterior en el siguiente paso, intente deslizar el módulo en forma recta y verifique que se enganche correctamente en los conectores de panel posterior.

Asegúrese de que la palanca superior esté alineada con respecto al número de ranura correspondiente ubicado en el panel frontal del chasis. Consulte en Figure 3-2.

1. Locate the chassis card guides ① that line up with the slot number ② in which the module ③ will be installed. (In this example, slot 1 is being used.) Make sure the module locking levers are in the open position ⑤ (top and bottom).
2. Align the module card between the upper and lower card guides of the desired slot and slide it into the chassis, taking care that the module slides in straight. See Caution below.

Caution: Due to the amount of force needed to properly seat the module connectors into the backplane connectors, it is best to apply force to the end of the levers to insert (or eject) the module. Otherwise, damage could result to the module and chassis.

Precaución: Para colocar los conectores del módulo en los conectores del panel posterior correctamente es necesario hacer bastante fuerza, por ello, para insertar o quitar el módulo, se recomienda concentrar la fuerza en el extremo de las palancas. Si no lo hace, podría dañar el módulo y el chasis.

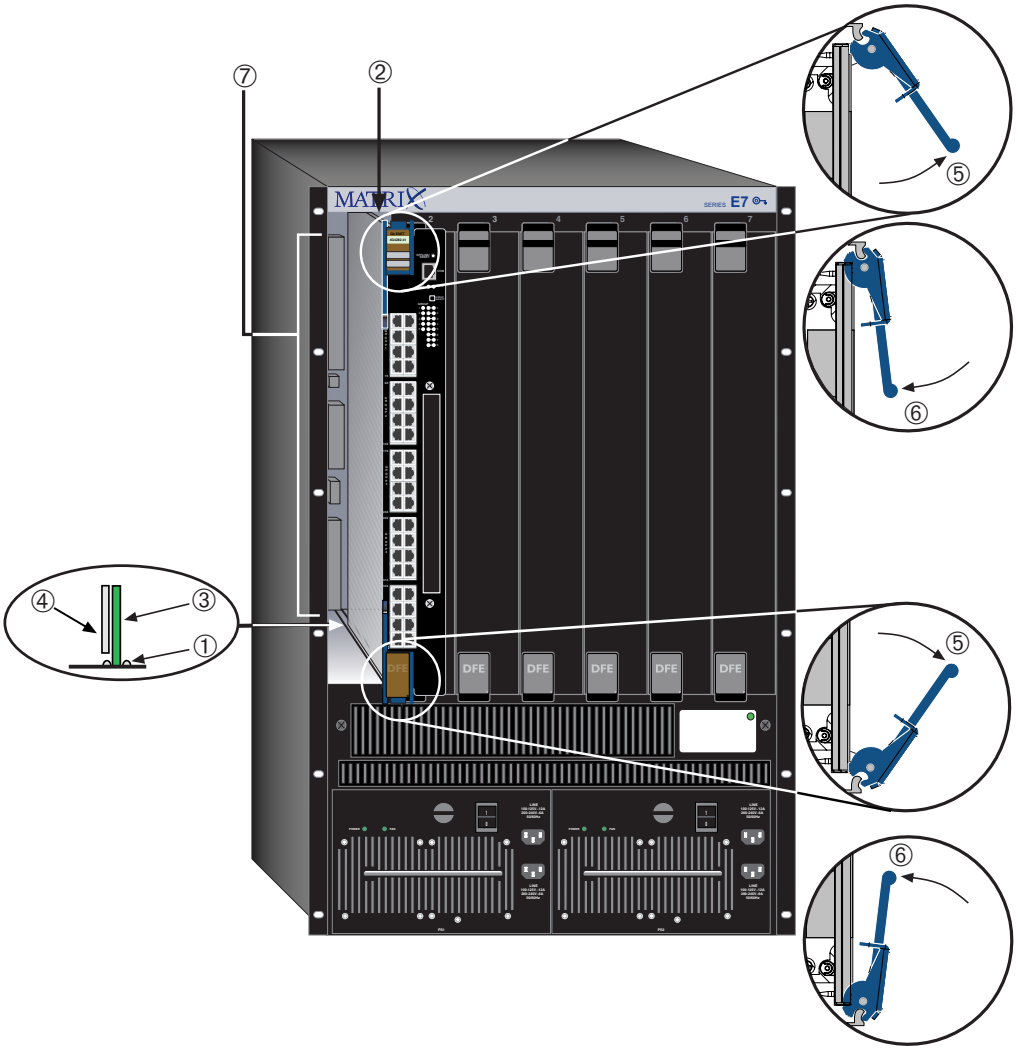
3. Slide the module into the slot until you can engage the top and bottom locking levers ⑤ with the chassis as shown in Figure 3-2.

Caution: In step 4, do not force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

Precaución: En el paso 4, tenga cuidado de no llevar las palancas de cierre a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo y/o el chasis.

4. Refer to the Caution note above, then rotate the two levers into the closed position ⑥.
5. If the chassis in which the module is installed was powered down for the installation, turn the power supplies on. Check to see that the module CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, refer to Chapter 4 for troubleshooting details.

Figure 3-2 Installing Module into Matrix E7 or Matrix N7 Chassis (E7 shown)



① Card guides
② Slot number 1
③ Module card
④ Metal back panel
⑤ Upper/lower locking levers (in proper open position)
⑥ Upper/lower locking levers (in closed position)
⑦ Backplane connectors (power and FTM2)

Installing Module into Matrix N3, N1, or N5 Chassis (N3 shown)

Caution: Failure to observe static safety precautions could cause damage to the DFE module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

Precaución: Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

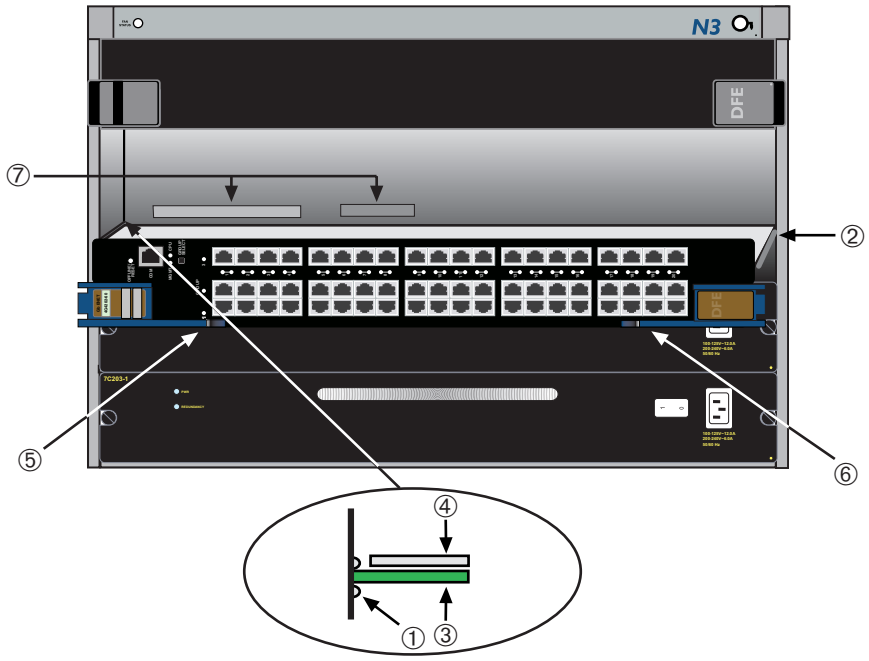
No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

A DFE-Gold module can be installed in any available chassis slot (1 through 3) in the Matrix N3 chassis or slots 1 through 5 in the N5 chassis, or in the N1 chassis. All three chassis have horizontal slots for DFE-Series modules. To install the module into the Matrix N3, N5, or N1 chassis, refer to Figure 3-3 and proceed as described in "Installing Module into a Chassis" on page 3-5.

Caution: When setting the locking levers to the closed position, do not try to force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

Precaución: Al mover las palancas a la posición de cerrado, tenga cuidado de no llevarlas a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo o el chasis.

Figure 3-3 Installing Module into Matrix N3, N1, or N5 Chassis (Matrix N3 shown)



① Card guides
② Slot 1 (Top slot is slot 3.)
③ Module card
④ Metal back panel
⑤ Upper locking tab (shown in closed position)
⑥ Lower locking tab (shown in closed position)
⑦ FTM2 backplane connectors

Connecting to the Network

This section provides the procedures for connecting unshielded twisted pair (UTP) segments from the network or other devices to the 4G4282-41 ("Connecting UTP Cables to 4G4202-60 or 4G4282-41" on page 3-11).

Note: If the DFE-Gold module is being installed in a network using Link Aggregation, there are rules concerning the network cable and port configurations that must be followed for Link Aggregation to operate properly. Before connecting the cables, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide* for the configuration information. For details on how to obtain manuals, refer to the "Related Documents" in **About This Guide**.

Connecting UTP Cables to 4G4202-60 or 4G4282-41

The fixed RJ45 front panel connections of the 4G4202-60 and 4G4282-41 are 10/100/1000 Mbps ports. These ports have internal crossovers, and also support automatic-polarity sensing when configured for automatic-negotiation.

If automatic-negotiation is not activated on a port, use a straight-through cable when connecting a workstation to the port. When connecting a networking device to the port, such as a bridge, repeater, or router, use a crossover cable.

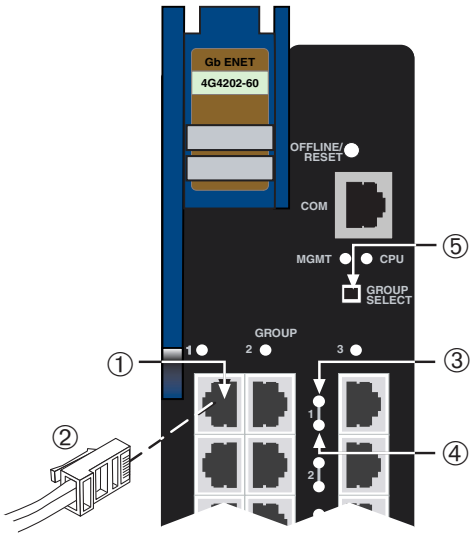
If a port is set for auto-negotiation, automatic-polarity sensing is also activated. Automatic-polarity sensing eliminates the need for a crossover cable, regardless if the connection is to another network device or a workstation.

Note: All RJ45 front panel ports on the 4G4202-60 and 4G4282-41 support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms. Category 3 cable may be used if the connection is going to be used only for 10 Mbps.

In this procedure, the 4G4202-60 is used as the example to connect a twisted pair segment to the module. Refer to Figure 3-4 and proceed as follows:

1. Ensure that the device connected to the other end of the segment is powered ON.
2. Connect the twisted pair segment to the module by inserting the RJ45 connector ① on the twisted pair segment into the appropriate RJ45 port connector ②.

Figure 3-4 Connecting a Twisted Pair Segment to the DFE-Gold Module



① RJ45 connector
② RJ45 port connector
③ Transmit status (TX) LED)
④ Receive status (RX) LED
⑤ GROUP SELECT button

3. Verify that a link exists by checking that the port RX (Receive) LED ③ is ON (flashing amber, blinking green, or solid green). If the RX LED is OFF and the TX (Transmit) LED ④ is not blinking amber, perform the following steps until it is on:

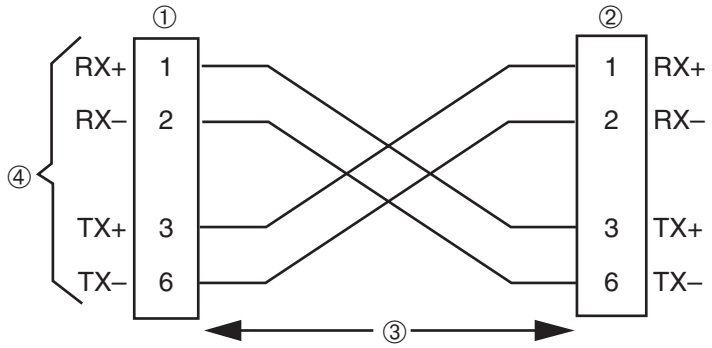
   a. To view the receive and transmit activity on a group of segments, press the GROUP SELECT button ⑤ (see Figure 3-4) to step to the group of interest (Groups 1 through 3 on 4G4202-60 as shown in 4G4202-60, or Groups 1 through 5 on the 4G4282-41). Each time the GROUP SELECT button is pressed, the GROUP LED lights up in sequence, indicating which Group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each segment.

   b. Verify that the cabling being used is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 100 Mbps, category 5 cabling must be used.

   c. Verify that the device at the other end of the twisted pair segment is on and properly connected to the segment.

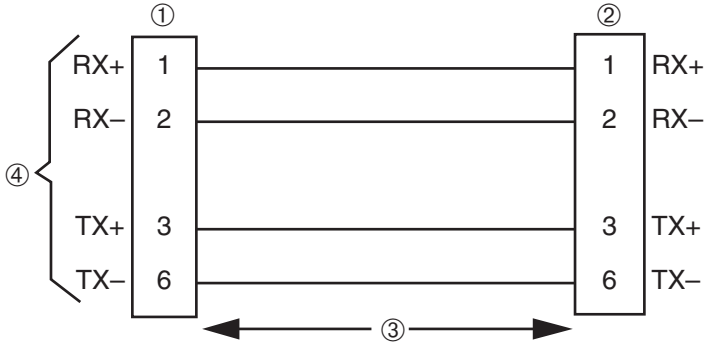
   d. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts and check the cable for continuity. Typically, a crossover cable is used between hub devices. A straight-through cable is used to connect between switches or hub devices and an end user (computer). Refer to Figure 3-5 and Figure 3-6 for four-wire RJ45 connections. Refer to Figure 3-7 and Figure 3-8 for eight-wire RJ45 connections.

Figure 3-5 Four-Wire Crossover Cable RJ45 Pinouts, Connections Between Hub Devices



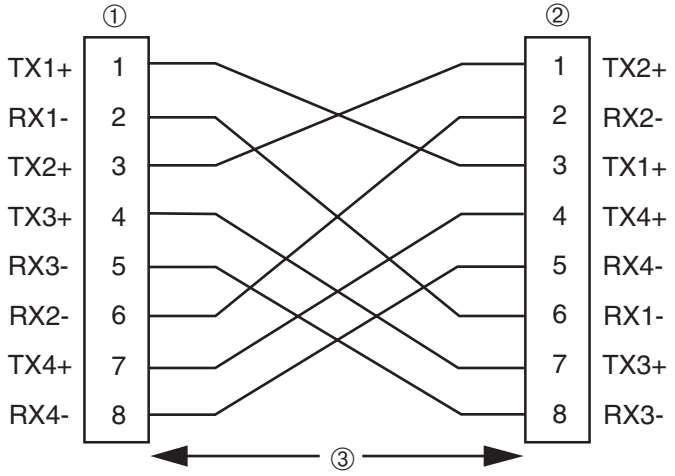
① RJ45 device port
② Other device port
③ RJ45-to-RJ45 crossover cable
④ RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

Figure 3-6 Four-wire Straight-Through Cable RJ45 Pinouts, Connections Between Switches and End User Devices



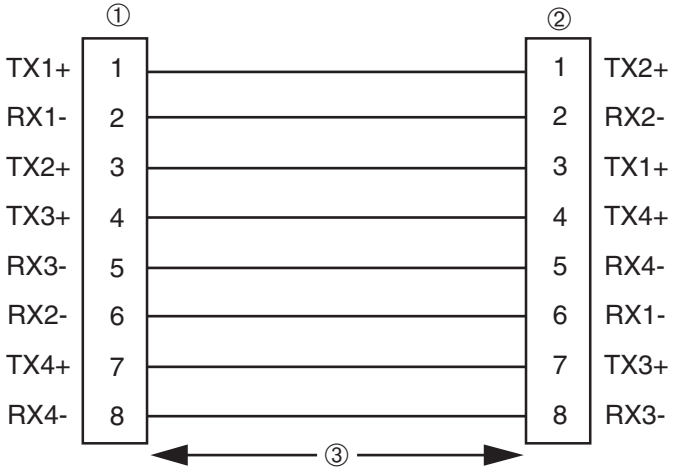
① RJ45 device port
② Other device port
③ RJ45-to-RJ45 straight-through cable
④ RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

Figure 3-7 Eight-Wire Crossover Cable RJ45 Pinouts, Connections Between Hub Devices



① RJ45 device port
② Other device port
③ RJ45-to-RJ45 crossover cable

Figure 3-8 Eight-Wire Straight-Through Cable RJ45 Pinouts, Connections Between Switches and End User Devices



① RJ45 device port
② Other device port
③ RJ45-to-RJ45 straight-through cable

e. Ensure that the twisted pair connection meets the dB loss and cable specifications outlined in the *Cabling Guide.* Refer to "Related Documents" in **About This Guide** for information on obtaining this document.

If a link is not established, contact Enterasys Networks. Refer to "Getting Help" on page xviii for details.

4. Repeat steps 1 through 3 above, until all connections have been made.

Connecting to COM Port for Local Management

This section describes how to install a UTP straight-through cable with RJ45 connectors and optional adapters to connect a PC, a VT series terminal, or a modem to a Enterasys Networks DFE-Gold module.

Note: You can connect to any DFE-Gold module in the chassis to access local management for the DFE-Gold system.

This section also provides the pinout assignments of the adapters.

What Is Needed

The following is a list of the user-supplied parts that may be needed depending on the connection:

- RJ45-to-DB9 female adapter
- UTP straight-through cable with RJ45 connectors
- RJ45-to-DB25 female adapter
- RJ45-to-DB25 male adapter

With a UTP straight-through cable with RJ45 connectors and RJ45-to-DB9 adapter, you can connect products equipped with an RJ45 COM port to an IBM or compatible PC running a VT series emulation software package.

With a UTP straight-through cable and RJ45-to-DB25 female adapter, you can connect products equipped with an RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

With a UTP straight-through cable and an RJ45-to-DB25 male adapter, you can connect products equipped with an RJ45 COM port to a Hayes compatible modem that supports 9600 baud.

Connecting to an IBM PC or Compatible Device

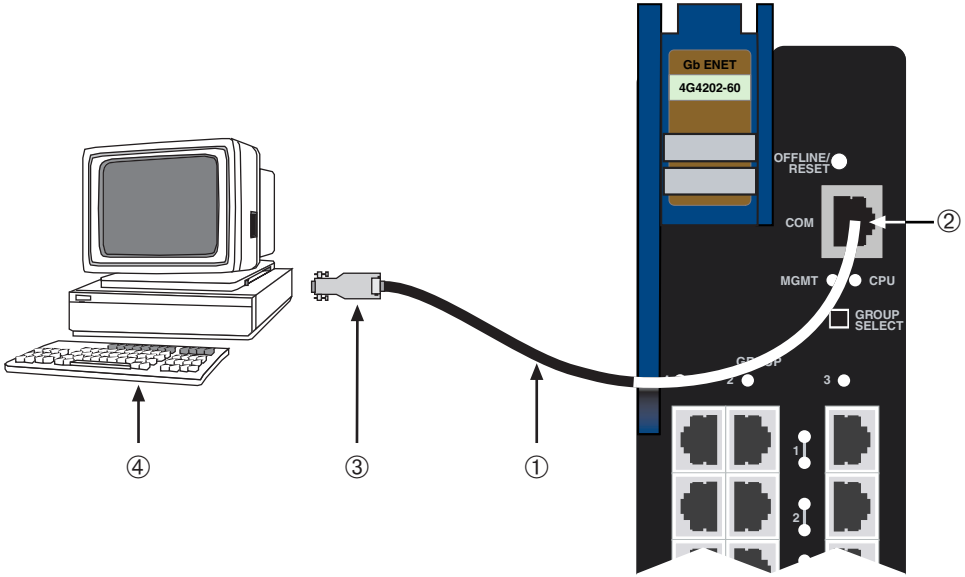
To connect an IBM PC or compatible device, running the VT terminal emulation, to an Enterasys Networks module COM port (Figure 3-9), proceed as follows:

1. Connect the RJ45 connector at one end of a UTP straight-through cable ① to the communications COM port ② on the Enterasys Networks module. (The COM port is also known as a Console port.)
2. Plug the RJ45 connector at the other end of the UTP straight-through cable ① into an RJ45-to-DB9 adapter ③.
3. Connect the RJ45-to-DB9 adapter ③ to the communications port on the IBM PC ④.
4. Turn on the PC and configure your VT emulation package with the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

5. When these parameters are set, the Local Management password screen will display. Refer to the appropriate *Enterasys Matrix DFE-Gold Series Configuration Guide* for further information.

Figure 3-9 Connecting an IBM PC or Compatible



① UTP straight-through cable with RJ45 connectors
② RJ45 COM port
③ RJ45-to-DB9 PC adapter
④ IBM PC or compatible device

Connecting to a VT Series Terminal

To connect a VT Series terminal to an Enterasys Networks DFE-Gold module COM port (Figure 3-10), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 female adapter, and proceed as follows:

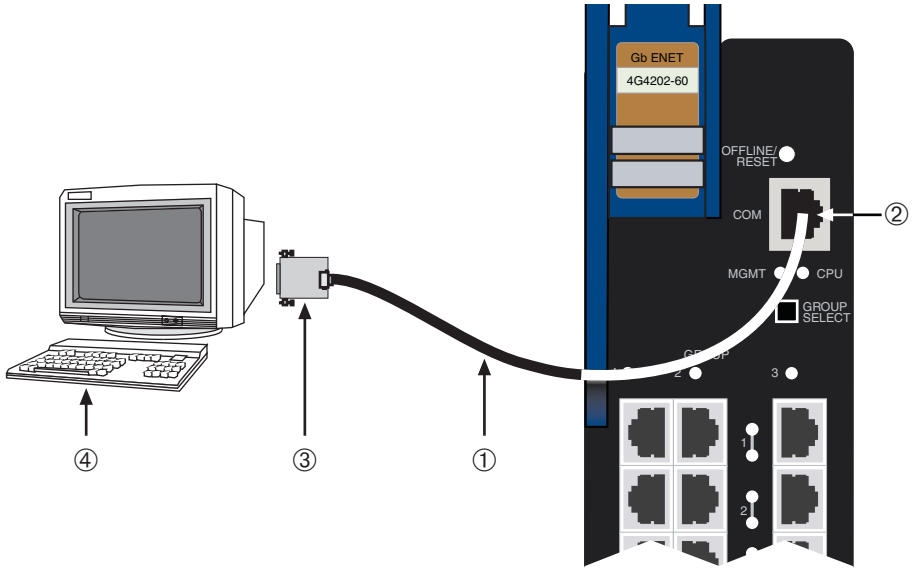
1. Connect the RJ45 connector at one end of the UTP straight-through cable ① to the COM port ② on the Enterasys Networks module.
2. Plug the RJ45 connector at the other end of the UTP straight-through cable ① into the RJ45-to-DB25 female adapter ③.
3. Connect the RJ45-to-DB25 adapter ③ to the port labeled COM on the VT terminal ④.

4. Turn on the terminal and access the Setup Directory. Set the following parameters on your terminal:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide* for further information.

Figure 3-10 Connecting a VT Series Terminal



① UTP straight-through cable with RJ45 connectors
② RJ45 COM port
③ RJ45-to-DB25 VT adapter
④ VT series terminal

Connecting to a Modem

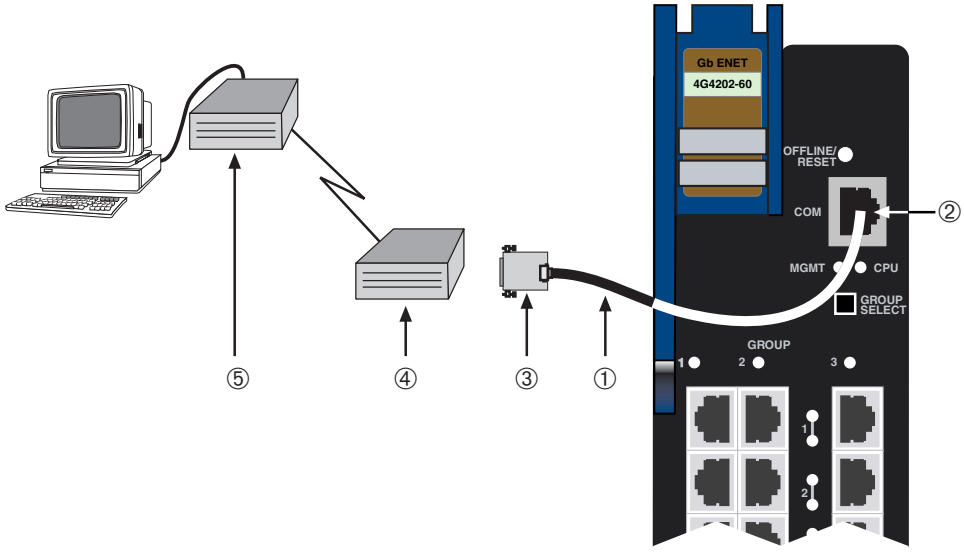
To connect a modem to an Enterasys Networks DFE-Gold module COM port (Figure 3-11), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 male adapter, and proceed as follows:

1. Connect the RJ45 connector at one end of the UTP straight-through cable ① to the COM port ② of the DFE-Gold module.
2. Plug the RJ45 connector at the other end of the UTP straight-through cable ① into the RJ45-to-DB25 modem adapter ③.
3. Connect the RJ45-to-DB25 adapter ③ to the communications port on the modem ④.
4. Turn on the modem ④.
5. With a PC connected to a remote modem ⑤, you can configure the switch remotely. To accomplish this, you must configure your PC VT emulation package with the following parameters.

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

6. When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide* for further information.

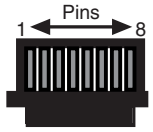
Figure 3-11 Connecting to a Modem



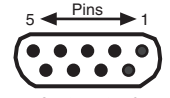
① UTP straight-through cable with RJ45 connectors
② RJ45 COM port
③ RJ45-to-DB25 modem adapter
④ Local modem
⑤ Remote modem

Adapter Wiring and Signal Assignments

COM Port Adapter Wiring and Signal Diagram			
RJ45		**DB9**	
Pin	Conductor	Pin	Signal
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)

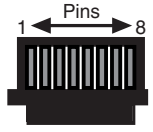


RJ45 Connector (Female)

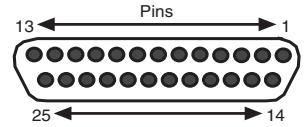


DB9 Connector (Female)

VT Series Port Adapter Wiring and Signal Diagram			
RJ45		**DB25**	
Pin	Conductor	Pin	Signal
4	Red	2	Transmit (TX)
1	Blue	3	Receive (RX)
6	Yellow	5	Clear to Send (CTS)
5	Green	7	Ground (GRD)
2	Orange	20	Data Terminal Ready

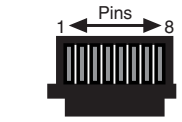


RJ45 Connector (Female)

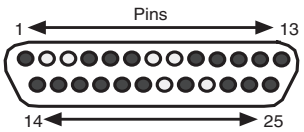


DB25 Connector (Female)

Modem Port Adapter Wiring and Signal Diagram			
RJ45		**DB25**	
Pin	Conductor	Pin	Signal
1	Blue	2	Transmit (TX)
2	Orange	8	Data Carrier Detect (DCD)
4	Red	3	Receive
5	Green	7	Ground (GRD)
6	Yellow	20	Data Terminal Ready (DTR)
8	Gray	22	Ring Indicator



RJ45 Connector (Female)



DB25 Connector (Male)

Completing the Installation

Completing the DFE module installation depends on if the module is being installed in

- A new DFE module system (refer to "Completing the Installation" on page 3-22), or
- An established, operating DFE module system (refer to "Completing the Installation of a DFE-Gold Module in an Existing System" on page 3-24).

Completing the Installation of a New System

In a new system of DFE modules, one of the installed DFE modules will become the management module on chassis power up, and all DFE modules will automatically be set to the factory default values. A complete list of the factory default values are provided in Chapter 3 of the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

After installing all DFE-Gold modules into the host chassis and making the connections to the network, proceed to the following First-Time Log-In Using a Console Port Connection procedure to access the module management startup screen from your PC, terminal, or modem connection.

First-Time Log-In Using a Console Port Connection

Note: This procedure applies only to initial log-in, and to logging in to a device not yet configured with administratively-supplied user and password settings.

By default, the Matrix DFE Series device is configured with three user login accounts: **ro** for Read-Only access; **rw** for Read-Write access; and **admin** for super-user access to all modifiable parameters. The default password is set to blank (carriage return). For information on changing these default passwords, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

Start the Command Line Interface (CLI) from the module's local console port as follows:

1. Connect a terminal to the local console port as described in "Connecting to COM Port for Local Management" on page 3-15. The startup screen, Figure 3-12, displays.
2. At the login prompt, enter one of the following default user names:
   - **ro** for Read-Only access,
   - **rw** for Read-Write access, or
   - **admin** for Super User access. (This access level allows Read-Write access to all modifiable parameters, including user accounts.)
3. Press ENTER.
4. The Password prompt displays. Leave this string blank and press ENTER. The module information and Matrix prompt displays as shown in Figure 3-12.

The DFE-Gold module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Gold Series Configuration Guide* is available online at:

http://www.enterasys.com/support/manuals

If you require assistance, contact Enterasys Networks using one of the methods described in "Getting Help" on page xviii.

Figure 3-12 Matrix DFE Startup Screen Example (N7 Chassis)

```
login: admin
Password:


M A T R I X N7
Command Line Interface

Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 01810-1008 U.S.A.

Phone:  +1 978 684 1000
E-mail: support@enterasys.com
WWW:    http://www.enterasys.com

(c) Copyright Enterasys Networks, Inc. 2003

Chassis Serial Number:     xxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

Matrix N7(su)->
```

Completing the Installation of a DFE-Gold Module in an Existing System

In an established DFE module system,

- a DFE module is already established as the management module,
- the passwords have already been set for various users,
- the system IP address is set, and
- other system parameters have been set.

When you install a new DFE module into a system with an existing configured user account, the current system settings in that account are already recognized by the new DFE module and it will operate accordingly.

If you need to change any settings, you can connect a terminal to the local console port as described in "Connecting to COM Port for Local Management" on page 3-15 to access system management, or use a Telnet connection to access the DFE module system management as described in Chapter 3 of the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

Logging in with an Administratively-Configured User Account

If the device's default user account settings have been changed, proceed as follows:

1. At the login prompt, enter your administratively-assigned user name and press ENTER.
2. At the Password prompt, enter your password and press ENTER.

The notice of authorization and the Matrix prompt displays as shown back in Figure 3-12.

Note: Users with Read-Write (rw) and Read-Only access can use the **set password** command to change their own passwords. Administrators with Super User (su) access can use the **set system login** command to create and change user accounts, and the **set password** command to change any local account password. For information on the set password and set system login commands, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

The DFE-Gold module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Gold Series Configuration Guide* is available online at:

http://www.enterasys.com/support/manuals

If you require assistance, contact Enterasys Networks using one of the methods described in "Getting Help" on page xviii.

4

Troubleshooting

This chapter provides information concerning the following:

Unless otherwise noted, the following information applies to all DFE modules.

Using LANVIEW

The modules use a built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs (Figure 4-1) allow quick observation of the network status to aid in diagnosing network problems.

About the Management (MGMT) LED

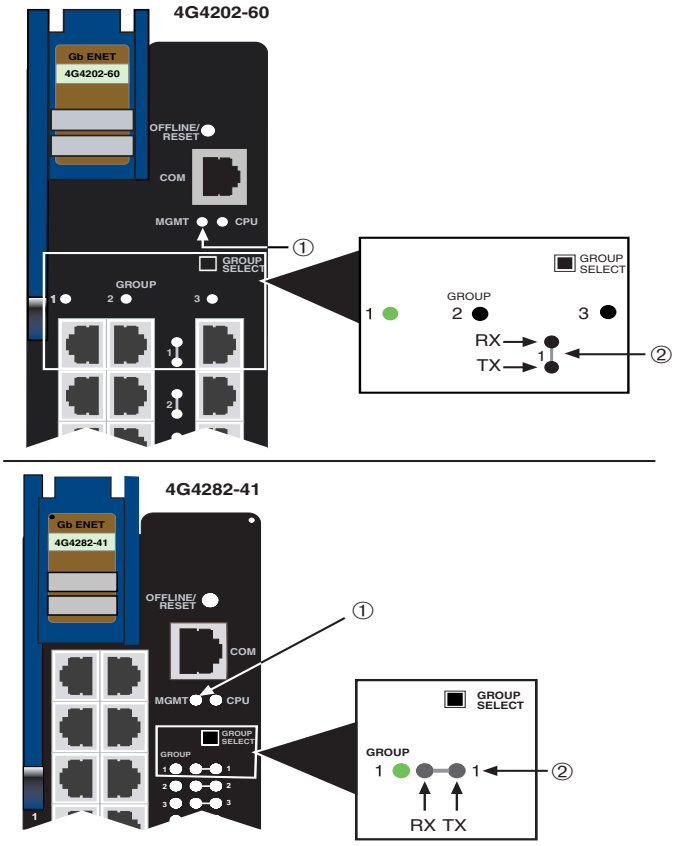
The MGMT LED (shown in Figure 4-1) indicates when the module is serving as the Management Module to control the management functions for all DFE modules in the chassis. The Management Module handles all IP requests to the chassis IP address, such as PING, Telnet, SNMP, HTTP, etc. The Management Module also handles the CLI configuration sessions via the console port. So, when you plug into a DFE module COM port to configure a DFE module in the chassis, it is handled by the Management Module regardless of the DFE module COM port that you use.

Viewing the Receive and Transmit Activity

On the 4G4202-60 and 4G4282-41, you can view the receive and transmit activity on the RX and TX LEDs. However, only one group of 20 ports may be viewed at a time.

To view the receive and transmit activity on a group of attached segments, press the GROUP SELECT button (see Figure 4-1) to step to the group of interest (Groups 1 - 3 for the 4G4202-60, and Groups 1 - 5 for the 4G4282-41). Each time the GROUP SELECT button is pressed, the GROUP LED lights up in sequence, indicating which group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each port.

Figure 4-1 LANVIEW LEDs



① MGMT LED ② Group 1, Port 1 LEDs

Table 4-1 describes the LED indications and provides recommended actions as appropriate.

Note: The terms **flashing**, **blinking**, **solid** and **alternating** used in Table 4-1 indicate the following:

Flashing indicates an LED is flashing randomly.

Blinking indicates an LED is flashing at a steady rate (approximately 50% on, 50% off).

Solid indicates a steady LED light. No pulsing.

Alternating indicates an LED is flashing in a steady rate other than 50% on, 50% off.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
MGMT	None	**Off**. This module is NOT the Management Module.	None.
	Green	**Solid**. This module is the designated Management Module.	None.
	Amber	**Flashing**. This is a temporary indication that the module is saving data.	None.
CPU	None	Power off.	Ensure chassis has adequate power.
	Amber	**Blinking**. Module in process of booting.	None.
		Solid. Testing.	If the LED remains amber for several minutes, contact Enterasys-Networks for technical support.
	Green	**Blinking**. Image starts running.	None.
		Solid. Functional.	None.
	Red	**Solid**. Processor in reset.	None.
	Green and Amber	**Blinking**. Indicates that the module is in the process of shutting down.	None. This state is activated when the OFFLINE/RESET switch is pressed for less than 1 second to start the process of an orderly shutdown. While in this state, do not remove any DFE-Gold module.

Table 4-1 LANVIEW LEDs (Continued)

LED	Color	State	Recommended Action
CPU (cont'd)	Amber and off	**Alternating (67% on, 33% off)**. Indicates that a shutdown process has completed. This indication will remain for 60 seconds before automatically restarting.	While in this state, you have 60 seconds to safely remove the DFE-Gold module from the chassis.
RX (Receive)	None	**No link**. No activity. Port enabled or disabled.	None.
	Green	**Solid**. Link present, port enabled, no traffic is being received by the interface.	None.
	Amber	**Flashing**. Link present, port enabled, traffic is being received by the interface.	None.
RX	Red	**Blinking**. Indicates collisions. This indication is only supported on 10/100 ports.	Contact Enterasys-Networks for technical support.
TX (Transmit)	None	Port enabled, but no activity.	If it is known that the port should be active and is not, contact Enterasys-Networks for technical support.
	Green	**Flashing**. Indicates data transmission activity. Rate of flashing indicates the data rate.	None.
	Red	**Flashing**. Fault or Error (collision).	None, unless there is a high rate of activity. In this case, check for network configuration problems or a defective device.

Troubleshooting Checklist

If the module is not working properly, refer to Table 4-2 for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 4-2 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure that the module was installed properly according to the installation instructions in Chapter 3, and that the host chassis is providing power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the *Matrix DFE-Gold Series Configuration Guide* for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A for proper COM port pinouts.
	Corrupt firmware image, or hardware fault.	If possible, attempt to download the image to the module again. Refer to the section, "Setting the Mode Switches," on page B-2 for instructions to clear NVRAM.
Cannot navigate beyond Password screen.	Improper username/ password combination entered.	If the username/password combination has been forgotten, refer to the section, "Setting the Mode Switches," on page B-2 for instructions on how to set the mode switch to reset the username/ password combination to the default values.
Cannot contact the module through in-band management.	IP address not assigned.	Refer to the *Matrix DFE-Gold Series Configuration Guide* for the IP address assignment procedure.
	Port is disabled.	Enable port. Refer to the *Matrix DFE-Gold Series Configuration Guide* for instructions to enable/ disable ports.
	Host Port policy and/or management VLAN is incorrectly configured, or not configured.	Verify that a management VLAN exists and that it is associated with the Host Port. Refer to the *Matrix DFE-Gold Series Configuration Guide* for information about Host Port and management VLAN configuration.
	No link to device.	Verify that all network connections between the network management station and the module are valid and operating. If the problem continues, contact Enterasys-Networks for technical support.

Table 4-2 Troubleshooting Checklist (Continued)

Problem	Possible Cause	Recommended Action
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the *Matrix DFE-Gold Series Configuration Guide* for the instructions to set the type of STA. Review the network design and delete unnecessary loops. If the problem continues, contact Enterasys-Networks for technical support.
User parameters (IP address, device and module name, etc.) were lost when the module power was cycled, the front panel OFFLINE/RESET switch was pressed.	Position of Mode switch (7), Persistent Data Reset, was changed sometime before either cycling power or pressing the OFFLINE/RESET switch, causing the user-entered parameters to reset to factory default settings. Clear Persistent Data that was set through Local Management. The module was moved either from slot-to-slot or from chassis-to-chassis.	Reenter the lost parameters as necessary. Refer to the *Matrix DFE-Gold Series Configuration Guide* for the instructions to configure the device. If the problem continues, contact Enterasys-Networks for technical support.

Overview of DFE-Gold Module Shutdown Procedure

Caution: Do not remove a DFE module from an operating chassis system before reading the following information and instructions.

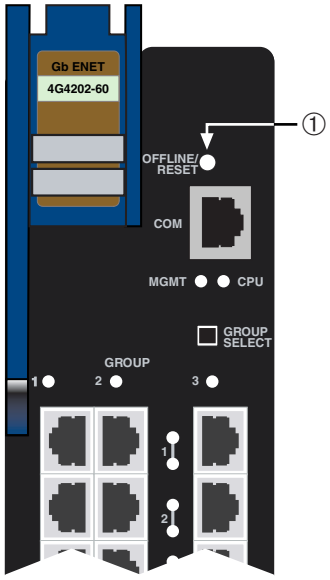
Precaución: Antes de retirar los módulos DFE del chasis en funcionamiento, lea las siguientes instrucciones y la información suministrada.

The DFE-Gold modules installed in a Matrix E7, Matrix N1, Matrix N3, Matrix N5, or Matrix N7 chassis are interdependent and operate under a single IP address as a single, distributed switch system (hardware, databases, and persistent storage). In this operating environment, the DFE-Gold module must shut down in an orderly fashion to ensure that the other modules in the system and other devices on the network are notified of the impending change. The device(s) can then make intelligent decisions and stabilize the network before the change is made; thereby increasing network availability.

You can shut down a DFE-Gold module in an operating system using the OFFLINE/RESET switch shown in Figure 4-13. There are two procedures to shut down a DFE-Gold module.

- Recommended shutdown procedure (page 4-8)
- Last resort shutdown procedure (not recommended) (page 4-8)

Figure 4-13 OFFLINE/RESET Switch



① OFFLINE/RESET switch (in similar location on 4G4282-41)

Recommended Shutdown Procedure Using OFFLINE/RESET Switch

Caution: Do not pull any DFE module out of an operating chassis before it has completed its shutdown routine.

Precaución: No retire los módulos DFE del chasis en funcionamiento hasta que no se haya terminado con la rutina de apagado.

Before pulling a DFE-Gold module out of a chassis,

press or tap on its OFFLINE/RESET switch for less than 1 second.

Its CPU LED changes from solid green to blinking between green and amber, indicating that the module is shutting down. At the end of the shutdown routine, the CPU LED changes to a 67%/33% sequence of amber/off, respectively, indicating the module is in a halt state. In this time it is safe to restart or remove the module from the chassis.

When a controlled shutdown is initiated from the OFFLINE/RESET switch, you have 60 seconds from the time the CPU starts alternately flashing amber/off until the device automatically restarts.

Note: The only safe time to pull a DFE-Gold module out of the chassis is when the CPU LED is alternately flashing amber/off. Otherwise, system operation will be interrupted.

Last Resort Shutdown Procedure Using OFFLINE/RESET Switch

Caution: This method of shutting down a DFE module is not recommended except as a last resort, because all processes currently running on the module will be interrupted resulting in loss of frames.

Precaución: No se recomienda utilizar este método para apagar los módulos DFE- Gold. Recurra a él sólo como último recurso, puesto que interrumpe todos los procesos del módulo en funcionamiento, lo que podría resultar pérdidas de frames.

To reset a DFE-Gold module without it performing an orderly shutdown routine,

press and hold the OFFLINE/RESET switch for approximately 6 seconds.

Pulling any DFE-Gold module out of the chassis before it has been shut down is not recommended. The only safe time to pull a module out of the chassis is after the completion of a shutdown and the management LED is alternately flashing amber/off.

A

Specifications

This appendix provides information about the following:

Enterasys Networks reserves the right to change the specifications at any time without notice.

DFE-Gold Module Specifications

Table A-1 provides the I/O ports, processors and memory, physical, and environmental module specifications for DFE-Gold modules, 4G4202-60 and 4G4282-41. Unless noted differently, the specifications apply to all five DFE modules.

Table A-1 Specifications

Item	Specification
4G4202-60 Ports	
Ports 1 through 60	Sixty 10BASE-T/100BASE-TX/1000BASE-T compliant ports, via sixty RJ45 connectors.
4G4282-41 Ports	
Ports 1 through 40	Forty 10BASE-T/100BASE-TX/1000BASE-T compliant ports, via forty RJ45 connectors.
Option Slot	Supports one optional NEM.

Table A-1 Specifications (Continued)

Item	Specification
Processors/Memory	
Processor	MPC750CX, 400 MHz processor
Dynamic Random Access Memory (DRAM)	128 MB
FLASH Memory	32 MB
Physical	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight	Gross: 5.54 kg (12.0 lb) (shipping carton containing one module) Net: 4.10 kg (9.0 lb) (one module without packaging)
Calculated hours for Mean Time Between Failures (MTBF)	For the MTBF hours for these products, refer to the MTBF web site at URL http://www.enterasys.com/support/mtbf/
Environmental	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

COM Port Pinout Assignments

The COM port is a serial communications port for local access to Local Management. Refer to Table A-2 for the COM port pin assignments.

Table A-2 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Clear to Send (CTS)	Input
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Request to Send (RTS)	Output
7	Data Terminal Ready (DTR)	Output
8	Data Carrier Detect (DCD)	Input

Regulatory Compliance

The 4G4202-60 and 4G4282-41 meet the safety and electromagnetic compatibility (EMC) requirements listed in Table A-3:

Table A-3 Compliance Standards

Regulatory Compliance	Standards
Safety	UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, and IEC 60950. The modules that support laser connections also meet the EN 60825 and 21 CFR 1040.10 standards.
Electromagnetic Compatibility (EMC)	47 CFR Parts 2 and 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, and VCCI V-3

B

Mode Switch Bank Settings and Optional Installations

This appendix covers the following items:

Required Tools

Use the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver

Caution: An antistatic wrist strap is required to perform the procedures in this appendix. Use the antistatic wrist strap shipped with chassis when performing any of the procedures in this appendix to minimize ESD damage to the devices involved.

Precaución: Para llevar a cabo los procedimientos especificados en el apéndice deberá utilizar una pulsera antiestática. Para realizar cualquiera de los procedimientos especificados en el apéndice, no olvide utilizar la pulsera electrostática que acompaña el chasis para minimizar los efectos de las descargas de electricidad estática.

Setting the Mode Switches

Caution: Read the appropriate sections to be fully aware of the consequences when changing switch settings.

Only qualified personnel should change switch settings.

Precaución: Si desea modificar la configuración del interruptor, lea las secciones correspondientes para saber cuál será el resultado de hacerlo.

Estas modificaciones a la configuración sólo debe realizarlas personal calificado.

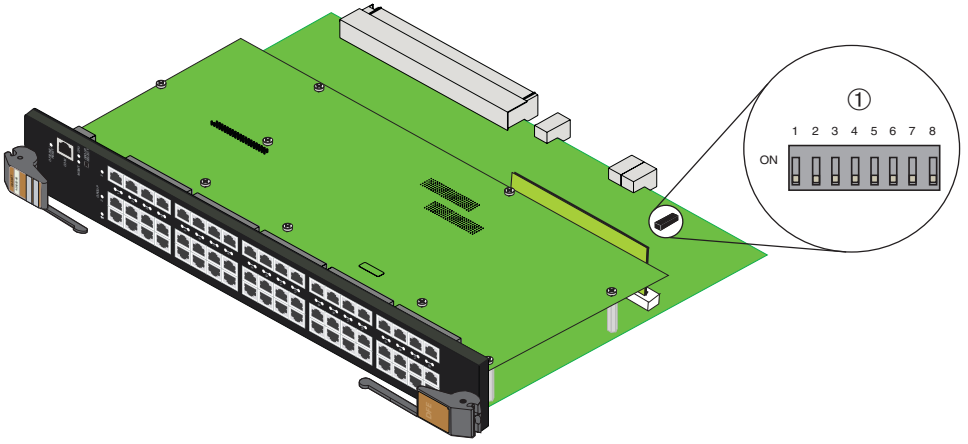
Figure B-1 through Figure B-3 show the location of the mode switches and the switch settings for normal operation. These switches are set at the factory to the off position and rarely need to be changed.

Switch definitions and positions are as follows:

- Switches 1 through 6 – For Enterasys Networks use only.
- Switch 7 – Clear Persistent Data. Changing the position of this switch clears Persistent Data on the next power-up of the module. All user-entered parameters, such as the IP address, module names, etc., are reset to the factory default settings. Once the module resets, you can either use the factory default settings or reenter your own parameters.
- Switch 8 – Clear Admin Password. Changing the position of this switch clears the admin password, and restores the factory default password on the next power-up of the module. Once the module resets, you can either use the factory default settings or reenter your own password.

Note: Do not change the position of Switch 8 unless it is necessary to reset the admin password to its factory default setting.

Figure B-1 Mode Switch Location on 4G4202-60 and 4G4282-41



① Mode switch pack

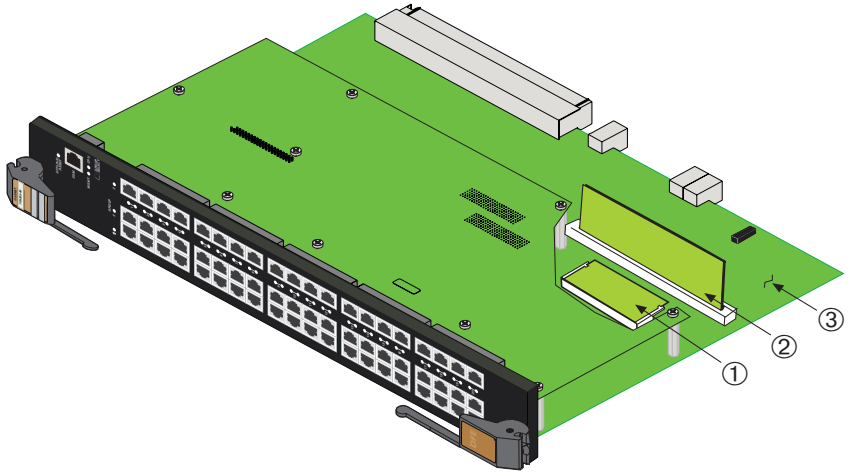
Memory Locations and Replacement Procedures

In the event that the Dual In-line Memory Module (DIMM) or DRAM Single In-line Memory Module (SIMM) (FLASH memory) needs to be replaced, the following sections describe how to access, locate and replace these memory modules. If you have questions concerning the replacement of either memory module, refer to "Getting Help" on page xviii for details on how to contact Enterasys Networks.

Location of DRAM SIMM and DIMM Memory Modules

Figure B-2 and Figure B-3 show the locations of the DRAM SIMM and DIMM on the each main board of the 4G4202-60 and the 4G4282-41, respectively.

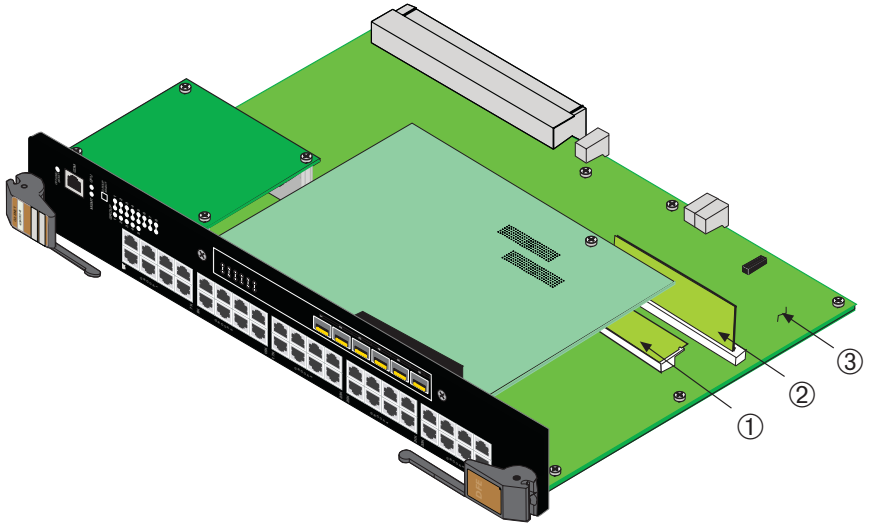
Figure B-2 Memory Module Locations on the 4G4202-60



① DIMM[1] ② DRAM SIMM ③ Main PC board

1. The DIMM on the 4G4202-60 is not considered to be a field replaceable unit.

Figure B-3 Memory Module Locations on the 4G4282-41



① DIMM ② DRAM SIMM ③ Main PC board

DIMM Replacement Procedure (4G4282-41)

Note: The following DIMM replacement instructions apply to the 4G4282-41 only. The DIMM is not considered a field replaceable part on the 4G4202-60. Contact Enterasys support if this part fails and needs a replacement.

Removing the DIMM

Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

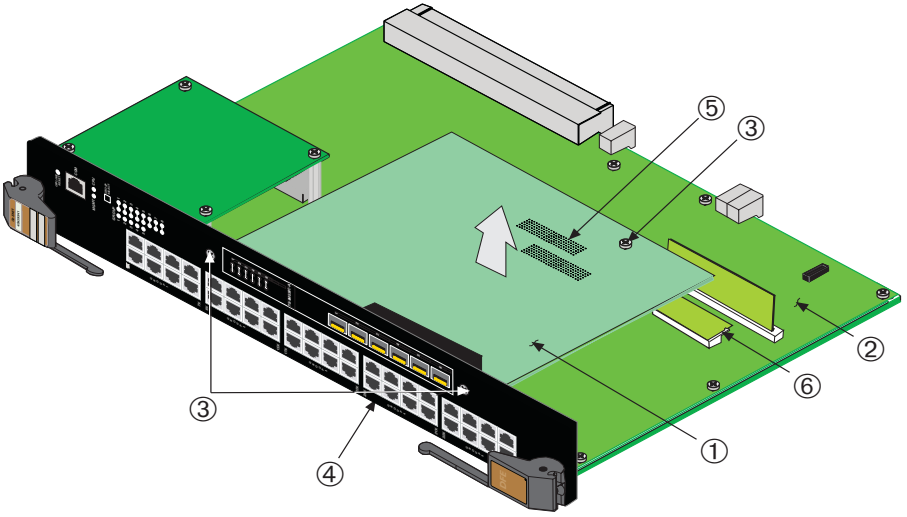
Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To remove the DIMM from the 4G4282-41, proceed as follows:

Note: Prior to removing the DIMM from a 4G4282-41, you must remove the Network Expansion Module (NEM) to gain access to the DIMM memory and connector.

1. If an optional Network Expansion Module is installed on the main board of the 4G4282-41, refer to Figure B-1 on page B-6 and proceed to step 1a. Otherwise proceed to step 2.
   a. Remove and save the three screws attaching the Network Expansion Module to the front panel.
   b. Lift the Network Expansion Module straight up and off the two module connectors on the main PC board.

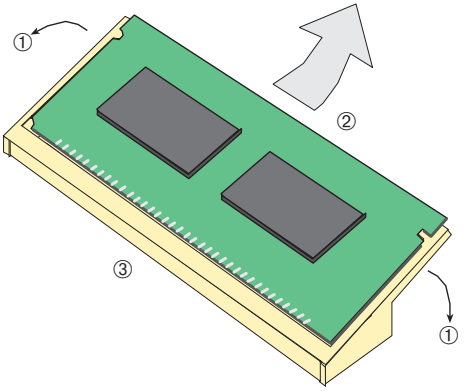
Figure B-1 Removing NEM and DIMM Connector Location on 4G4282-41



① NEM (not on all modules)
② Main PC board
③ Screws (3)
④ Module front panel
⑤ Module connectors on main board
⑥ DIMM memory module

2. Refer to Figure B-2. Push the connector arms away from the DIMM and simultaneously lift the DIMM enough to release it from the connector fingers.

Figure B-2 Removing the Existing DIMM from 4G4282-41



① Connector arms
② DIMM
③ Connector fingers

3. Rotate the DIMM upwards, then remove it from the connector fingers.

Installing the DIMM

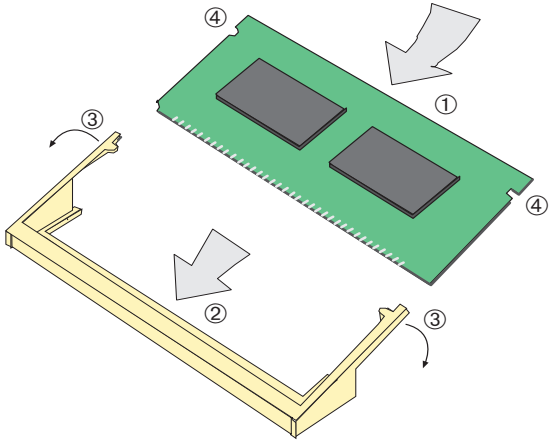
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install a DIMM, refer to Figure B-3 and proceed as follows:

1. Insert the DIMM down between the connector fingers.
2. Pivot the DIMM downward so the tabs on the connector arms align with the two DIMM alignment notches. With the two connector arms spread outward, push the DIMM down between the connector arms. Then release the two connector arms to lock the DIMM into place.

Figure B-3 Installing the DIMM on 4G4282-41



① DIMM
② Connector fingers
③ Connector arms
④ Alignment notches (2)

DRAM SIMM Replacement Procedure for 4G4202-60 or 4G4282-41

The DRAM SIMM is considered a field replaceable unit on both the 4G4202-60 and 4G4282-41.

Removing the DRAM SIMM

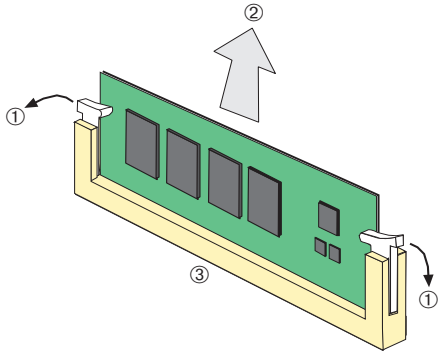
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To remove the existing DRAM SIMM, proceed as follows:

1. Locate the DRAM SIMM connector on the main PC board. Refer back to Figure B-3.
2. Push the connector arms away from the DRAM SIMM, as shown in Figure B-4, enough to release the DRAM SIMM from the connector contacts.

Figure B-4 Removing Existing DRAM SIMM from 4G4202-60 or 4G4282-41



① Connector arms ② DRAM SIMM ③ Connector contacts

3. Pull the DRAM SIMM straight up and remove it from the connector contacts.

Installing the DRAM SIMM on 4G4202-60 or 4G4282-41

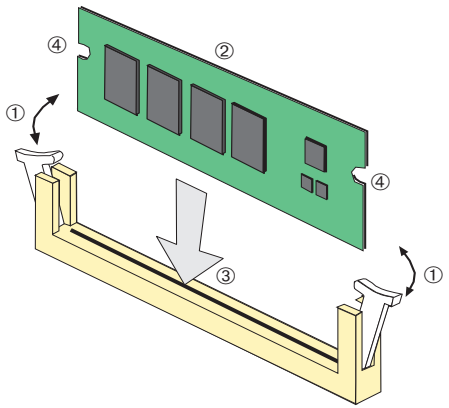
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install a DRAM SIMM, refer to Figure B-5 and proceed as follows:

1. Push the connector arms away from the DRAM SIMM enough to insert the DRAM SIMM into the connector contacts.
2. Insert the DRAM SIMM straight down between the connector contacts enough for the tabs on the connector arms to align with the two DRAM SIMM alignment notches.
3. Push the DRAM SIMM down into the connector contacts. Then rotate the two connector arms toward the DRAM SIMM to lock it into place.

Figure B-5 Installing the DRAM SIMM on 4G4202-60 or 4G4282-41



① Connector arms
② DRAM SIMM
③ Connector contacts
④ Alignment notches (2)

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